New Minds for New Science: The Forecast for Work in Weather, Water and Climate

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Who we are

- Over 13,000 students and professionals in weather water and climate
  - ~ equal representation of public, private and academic sector
- The AMS Policy Office informs policy-making and builds capacity in science policy

What we did

- 1.5 day workshop on the future of our workforce
- ~50 participants from all sectors
- Outline:
  - Technological Drivers
  - Societal Drivers
  - Perspectives from Public / Private Employers
  - Education from K-12 to professional training

PC: Kandis Boyd, OAR

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Main Conclusions

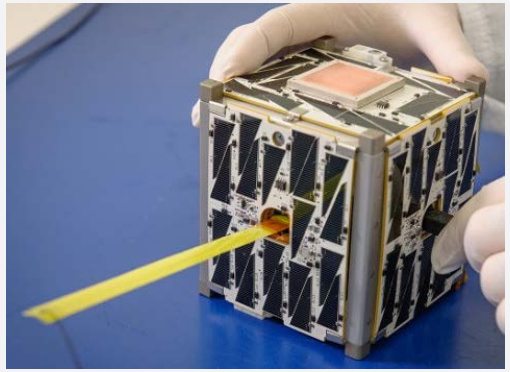
- Human capital is the greatest resource we have and its effectiveness depends on our choices
  - Part of the solution to many societal issues
  - The effects of technological and societal drivers are not predetermined

- In a time of rapid transitions, we need to build resiliency and adaptation strategies
  - e.g. soft skills are more resilient than hard skills

Technological Drivers

- A number of technologies are transforming work in geosciences at once (CubeSats, autonomous vehicles, cloud computing, …)
- The largest effects are expected from non-traditional data sources and artificial intelligence (AI)
- AI can lead to new scientific insights, but is also already transforming how we hire, train and evaluate
- Impacts of new technologies are hard to predict: 100% of jobs are changing

Wikipedia.org



Spaceflightinsider.com

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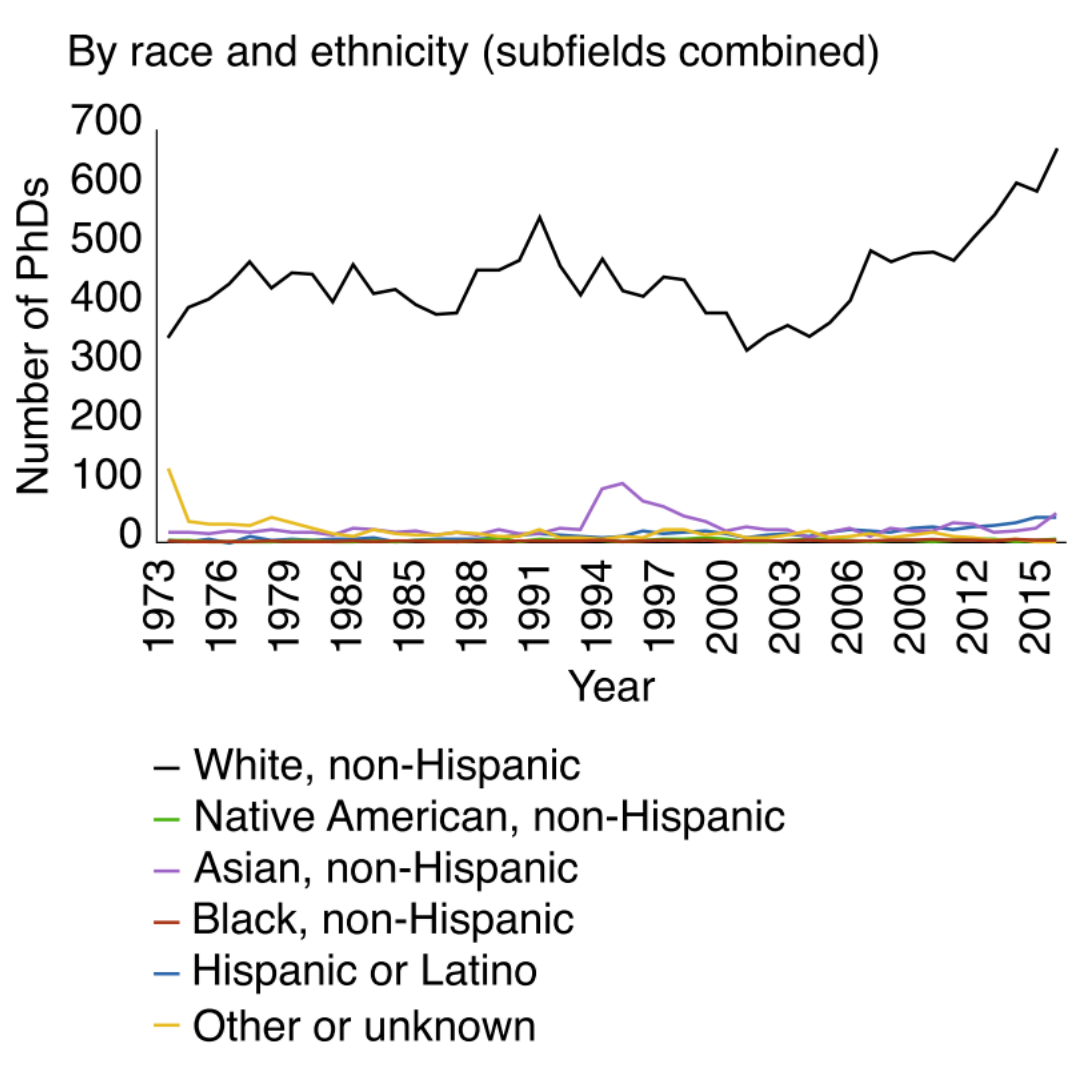
Societal Drivers (1/2) – The lack of Diversity



Bernard, Cooperdock; 2018 Nature Geoscience

- More diversity outperforms less diversity
- Nobody joins a particular field to increase diversity
- Make sure everyone feels safe, valued and welcome
- Address biases (gender, race, age disciplines, sectors)
- Show that geoscience is a valuable career choice, not just exciting field trips

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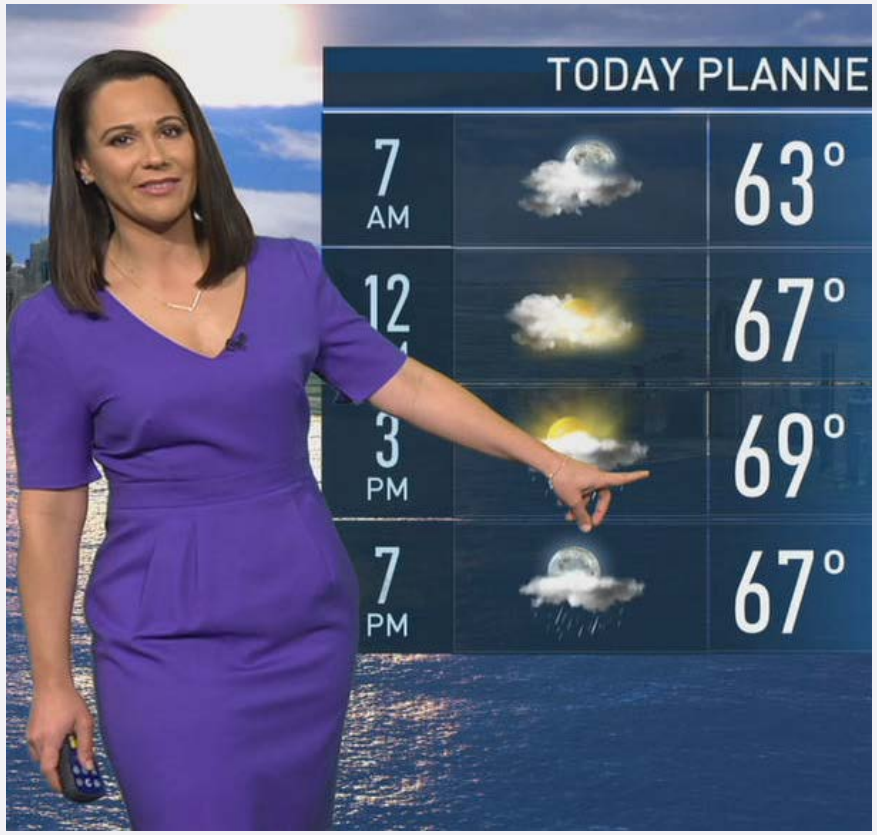
Societal Drivers (2/2)

- Growing demand for jobs “with a purpose” and the creation of actionable knowledge
  - Design for Impact
  - Design with Humility and Respect
  - Design for Equity
  - Design with Nature and Partners
- Can we adjust incentives accordingly?

Lessons from Public / Private Employers

- Job growth concentrated in the private sector
- Largest changes to forecasting (on and off air)
- Increased emphasis on connecting forecasts to societal outcomes
- New jobs in consulting, finance, energy, climate adaptation
- Students need a long time to transition into the workforce



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General Education

- We can't afford to focus on overachievers
- The human-machine interface is constantly evolving
- There is a lack of education research in our field
- Alternative career paths are not visible enough
- Opportunities for partnerships across sectors

Graduate Level Education

- Our community is not taking advantage of existing opportunities (e.g. NSF programs)
- The first year experience is critical
- Build relationships to HBCUs, community colleges, etc.
- The data revolution should work in our favor
- Reliable data on career outcomes is hard to come by

Next steps

- Publish report and policy memo on workshop results
- New AMS Department on Workforce Development
- Initiative on DEI in weather, water, climate
- Teacher trainings and textbooks developed by the AMS Education Department
- Explore opportunities for collaborations among societies and sectors

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Thank you for your attention!!!

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